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A Weekly Summary of Current Science

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BLOOD PRESSURE REDUCING COMPOUND FOUND IN LIVER

High blood pressure is reduced by substances produced in the liver, and extracted as a highly concentrated and potent compound by a Canadian physician, Dr. W. M. MacDonald of St. Cathatines, Ontario. Recently Dr. MacDonald discovered the value of a cruder form of the extract, and made a preliminary announcementof the fact. Since then he has been working on methods of purification and refinement, and made his report in Toronto before a recent meeting of the Toronto Academy of Medicine.

The results which have been obtained in experimental animals with the liver extract, and preliminary chemical analysis of the potent material, have shown that the active principle is similar in character and actionto certain ammonia-like substances already known to be capable of lowering the blood pressure. The great differences between the new material and the old lie in the size of the necessary dose and in the duration of the effects. To produce a given diminution of pressure, incomparably smaller quantities of the new material are needed than of histamine or choline, two of the most active of the older chemicals.

Further, the liver extracts produce effects which persist for several hours. All preparations which had been tried before Dr. MacDonald drew attention to liver extract had only a temporary effect and therefore gave little promise of furnishing a weapon for attacking the ailment in human beings.

Describing his earliest experiments on rabbits Dr. MacDonald told of the injection of liver extract into the jugular vein of 28 animals. At this stage, there was no clue as to the proper dose, and the treatment proved so drastic that the blood pressure of 21 of the rabbits was reduced to zero, and they died. Of the remaindor five showda long and decided fall and inthe case of two there was no appreciable alteration. Still more significant results were obtained inthe case of dogs and cats, where practically without exception a drop in blood pressure occurred when the extract was administered. Cats and dogs are being used for all the animal experiments at the present time.

Of vital importance from the point of view of the safety of the preparations was the statement by Dr. MacDonald that the lethal dose is definite and can be ascertained. "The effect appears to be in direct proportion to the weight of the animal and to the amount administered" he explained; "the lethal dose can be definitely established".

In his experiments animals were given doses of proper strength at frequent intervals, in order to reveal whether there was any unfavorable cumulative

action. No such ill results could be detected. Dr. MacDonald said; "Both the toxicity tests on laboratory animals and the effects of the extracts on the isolated heart, have not revealed any unfavorable action which would contradict their repeated injection into man. Repeated injections at intervals of several days have not brought out any anaphylactic-like reactions".

Dr. MacDonald stated that a yardstick has now been obtained by which to measure the potency of liver extracts. This is done by standardization against histamine, which can be prepared pure in the laboratory. Two methods have been perfected already, one of which consists in the comparison of liver extract and histamine by injection into an animal on which a blood pressure tracing is being made; the other method consists in making use of the power possessed by both extract and histamine, to cause contractions in certain of the involuntary muscles of the body.

The facts as they are known to date were summarized by Dr. MacDonald as follows;

"An extract of liver has been obtained which possesses the property of reducing to a certain extent arterial hypertension in cases where there are no complications.

"This extract contains neither protein nor peptone, but does contain histamine in small quantities. It contains choline inrelatively large quantities .

"It is quite possible that the effect produced by a proper combination of these two substances may be responsible for the lowering of pressures noted in both laboratory animalsand clinical cases.

"It is more probable, however, that because of the much greater effect produced by a given quantity of extract, than can possibly be obtained by the injection of even many times the quantity of histamine and choline contained in the said quantity of extract, the result is due to an unknown substance, or that this unknown substance may activate either the histamine or the choline or both.

"Intramuscular injection is much more efficacious than intravenous. The extract is more effective in hypertension than in normal cases."

Stating that much yet remains to be discovered, Dr. MacDonald said: "Whereas our method of assaying the extract in units is definite, we have as yet no method of determining the dosage, in units, for any given case. Neither have we any method of determining our selection of cases for treatment."

John Bayer's "Uranometria", first published in 1603, was the first book to use the modern system of naming stars, "alpha Orionis", the last part being the Latin name of the constellation and the former the Greek letter indicating the relative brightness of the star in the constellation.

A recent flood in Athens uncovered thirty ancient tombs, in five of which mummies were found.

NEW GLAND EXTRACT MAY HEAL BROKEN BONES

Broken bones can be cured through the use of a new glandular extract that has already proved its usefulness in curing tetany.

This is the information from Japan where experiments have been in progress with the hormone of the parathyroids that was isolated last year by Prof. J. B. Collip of the University of Alberta, Edmonton, Canada.

Professor Collip obtained from the parathyroid glands a hormone or extract which, when injected or given by the mouth, causes the amounts both of calcium and phosphate in the blood serum to rise. The parathyroids are four very small glands in the neck which lie near the thyroid gland or are embedded in it. His discovery was applied successfully to the cure of tetany, a somewhat rare disease usually found in children, and characterised by peculiar spasms.

A much wider utility for it is foreshadowed by the work done subsequently by Dr. Ogawa, in the surgical clinic of the Japanese medical academy of Keijo. As bone is so largely composed of calcium phosphate, a hormone which raises the amount of this substance in the blood might be expected to assist in bone formation. Rats with broken legs were found to produce twice as much new bone when fed with parathyroid glands as when not so fed.

Bone consists largely of calcium phosphate, and after a fracture fresh quantities of this substance must be taken from the blood for the formation of new bone. The slowness of the healing process seemsto be largely due to the very small amounts of calcium and phosphorus in the blood.

The publication of the results in the case of human beings is awaited with the greatest interest, for there is reason tobelieve that the administration of parathyroid extract would not only hasten the healing of fractures in the young, but might render it possible in old age.

NEW "WOOL" FABRIC MADE FROM WOOD

A new yarn, with the warm soft feel of lamb's wool, is now being made from the waste product of the artificial silk industry. U.S. Department of Commerce officials hold out a great future for the new fabric, which is already being manufactured in the United States as well as being imported from Italy, where it started.

The new "wool" is shimmery and dyes in beautiful colors. Combined with real wool in making serge andother goods, it improves its appearance, as silk does. It is not as strong as sheep's wool, and like artificial silk, does not wash as well, This is not a serious drawback for its use in textiles, as only a part of the strength of materials is necessary in clothing.

Chemically, the new yarn is the same as artificial silk, or rayon, for it is either made from its scraps, or directly from cellulose or wood fiber by the identical process. In making of artificial silk, the viscose, or dissolved cellulose, is spun into a continuous thread like real silk from the cocoons of silkworms. The fibers used in the making of this artificial "wool" are short pieces

from two to six inches in length, which are worked into yarn like sheep's wool.

The price of the fiber wool yarn will be from fifty cents to a dollar a pound, as compared with two dollars a pound for the real wool yarn, Department of Commerce officials say.

An Italian company is producing this new artificial wool yarn under a German patent and has placed it on the market where it is said to have been favorably received by textile makers. In England a wool-like product called "woolulose" is being manufactured directly from vegetable fiber by a process distinct from that used in making artificial silk.

The artificial fibers resembling wool and silk are the only textile materials that man has added to those provided directly by nature. His cotton grows on bushes, the silk worm spins his silk, the flax plant provides his linen, and the sheep and other animals his wool.

But man has improved in one way on nature's textile materials, for these rayon fabrics are more transparent to the ultra-violet or short wavelengths of light which are so helpful in the cure of many diseases. The new fabrics, unlike the old ones, may enable the fully dressed man of a civilized age to get as close to the sun as the savage of the South Sea Island.

X-RAY TREATMENTS AFFECT SEX OF ANIMAL OFFSPRING

X-ray treatment of the prospective father of a brood of animals before mating will influence the proportion of males and females among his offspring. If themating is made within a few days after the treatment there will be more males; if it is delayed for a week or two there will be more females. These results were obtained by A. S. Parkes of the University of London, working on mice.

It has been known for many years, that prolonged exposure to X-rays produces sterility, both in man and animals. But no diminution of the sex instincts follows in such cases. Mr. Parkes has now investigated the effects on breeding power of exposure to a soft ray, in doses insufficient to produce complete sterility. The experiments were conducted on mice, and as there is reason to suppose that the sex of the offspring is determined by the male parent, only males are irradiated.

Three exposures of ten minutes each were given, and at determined periods thereafter the mice were mated with normal females. It was repeatedly found that from matings which had taken place within the first few days after exposure a large excess of male offspring were produced. Only two out of 11 litters conceived during the first three days after irradiation produced any excess of females.

Among the offspring conceived during the next week, however, females preponderated heavily. Seven litters were obtained, not one of which had an excess of males. The remaining births, conceived within from 25 to 56 days after irradiation, showed nothing very striking as regards the proportions of the sexes.

Seven hundred thirty-five normal mice, bred under conditions similar to those in which the experimental matings were made, gave a male percentage of 51.6 in their offspring. Young conceived from irradiated male parents within four

days of the date of the exposure, gave a male percentage of 59.4, whereas among offspring conceived during the next fortnight after irradiation the percentage of males fell to the remarkably low figure of 33.6.

No satisfactory theory has yet been found to explain these curious results. Further experiments are expected to show to what extent they apply to other animals, and whether or not they will be worthy of the attention of the animal breeder.

RADIATOR CONTROL SAVES AUTO OIL

Large savings in automobile engine oil can be made with proper operation of the auto radiator. This rather mysterious relation is explained by the National Bureau of Standards and a practical means of taking advantage of the Bureau's research discoveries is now suggested.

If theradiator of an engine is too cold the water circulating around the cylinders makes some of the gasolinecondense and mix with the lubricating oil. Soon the oil is so diluted that it must be thrown away. To prevent this difficulty the radiator water should be run as hot as possible without boiling; especially is it important to warm up the engine quickly when starting in cold weather.

But with alcohol in the radiator to prevent freezing during cold weather the driver is limited as to how hot he may run the cooling system without danger of losing his anti-freeze material. Everyone knows how dangerous it is to boil out the alcohol during a warm spell in the winter, because in the cold wave which follows a freeze-up is likely to occur with the usual disastrous radiator leaks or cracked cylinder block. The latest proposal to get rid of these troubles is to use an anti-freeze materialwhich boils at a higher temperature than water. Numerous such materials have been suggested and certain of thesehave been tried out with complete success by commercial fleets of trucks. The two most widely recommended materials are glycerine and ethylene glycol.

POISON FOR BOLL WEEVIL; VACUUM FOR STORAGE PESTS

Borgia banquets for boll weevils and "vacuum attacks" instead of gas attacks for grain weevils, clothes moths and other pests of goods in storage, are two of the interesting schemes of scientific warfare against insects outlined in the annual report of Secretary Jardine of the U.S. Department of Agriculture.

By cooperative research the bureaus of chemistry and entomology have distilled from large quantities of cotton plants minute amounts of odorous chemicals that apparently have a strong attraction for the boll weevil. After some further refinements, the department hopes to use these substances to give a nice taste to poisoned dishes to be set before the hungry weevils. Or they may be used as baits to lure theinsects into the death-chambers of traps.

The "vacuum attack" against insect pests is an interesting departure from the usual gas-attack methods using fumigants andpoison vapors of various kinds. It consists in literally taking the breath away from the insects by placing the articles into which they have burrowed in sealed chambers and then exhausting the air. Promising results are reported from experiments carried on by this method during the present year.

Other operations by the department have included the use of airplanes to shower insect-plagued orchards with poison dust, the eradication of new outbreaks of hoof and mouth disease and of European fowl plague, the material reduction of hog cholera by serum treatments, and radio broadcasting of weather information to half a million receiving sets on American farms.

INTERNATIONAL RESEARCH COUNCIL TO MEET NEXT JUNE

The question of whether Germany and the rest of the Central Powers shall be admitted to the councils of international science will be discussed again by the International Research Council at a general assembly of that body just summoned to meet in Brussels on June 29, 1926. This meeting has been called by M. E. Picard of France, president of the executive committee of this international body, according to notification given the National Research Council with headquarters in Washington.

This summer at the Brussels meeting of the council it was impossible to get action on the letting down of war bans because too few voting countries were represented at the meeting to allow the revoking of the statutory restrictions which have hitherto stood in the way of admitting the Central Powers to the Research Council. In addition to this technical difficulty, a substantial minority, including France, opposed the admission of Germany and her allies.

FOUR YOUNG CHIMPANZEES FACE NORTHERN WINTER

Four chimpanzees, creatures of the tropics, will try wintering in chilly New England this year, so that psychologists can make observations on their behavior.

The four chimps, ranging in age from one to five years, are the guests of Dr. R. M. Yerkes, of the Institute of Psychology, at Yale University; Dr. Yerkes has studied chimpanzees for several years in Cuba and Washington, D. C., but with the exception of experiments with one chimpanzee in Moscow, no one has ever before tried to take these heat-loving animals to a cold climate for study. The Yale psychologists are giving special attention to housing and diet of the apes, so as to take no chances of endangering their health and comfort.

Dr. Yerkes has found that chimpanzees make especially good subjects for scientific study because their behavior is more like that of children than like the behavior of other animals. By studying these almost human beings day after day, and putting them to ingenious tests, psychologists are learning much regarding their ways of learning, their mental processes, and their means of communication.

Human beings cannot be used for such constant study, but scientists who are working with apes say that sooner or later some parallel experiments will be given to chimpanzees and children of different ages, and gradually scientists will learn the points of difference and likeness between the higher apes and man.

OLD PATENT MODELS AUCTIONED BY GOVERNMENT

Some 25,000 old and battered models of American inventions were sold by auction recently by the General Committee of the U.S. Treasury Department. This represented about one-half of the models that have been so far examined by the government in its efforts to dispose of the huge collection of 150,000 models deposited in the Patent Office by early inventors.

Most of the articles put up for sale were valuable mainly for the metal or other materials they contained. The commission that is unpacking the models is salvaging the most interesting historic exhibits for the National Museum collection which already contains over 300 industrial models. After these have been selected heirs of the patentees may claim models. So far, 3,000 such claims have come in. The Patent Office can find records of about 95 per cent. of these, but some were destroyed in the fire of 1877, and some have been chosen by the National Museum , because of educational value. A large number, however, are being returned to the descendants of the early American inventors.

Museums all over the country have also put in requests for exhibits, and the commission is selecting models for this purpose. A great many useless or obviously unimportant things are being destroyed.

The Patent Office is setting aside a small exhibit of miniature guns, ships, and other objects for itself. Among these is a machine gun of 1829. Mr. J. A. Brearley, chief clerk of the Patent Office, points out that not many people realize that the modern machine gun had so ancient an ancestor. The gun is muzzle-loading, like other guns of its day, but it has eight barrels and could be fired sixteen times. There is also a little breech loading gun, patented in 1861, which is said by Mr. Brearley to be very similar to what the English are using today.

Another object rescued for the Patent Office exhibit is a small bottle which represents a "process of manufacturing Weiss beer extract", patented in 1889. The sample in the bottle will be displayed unopened, the Patent Office reports.

SEWAGE TO YIELD VALUABLE GAS FUEL

Cities of the future will have their gas works located near their plants for the disposal of sewage wastes, and scientific thrift will recover for fuel a useful gas now wasted intothe air. Light and heat from the gas obtained as a by-product in the treatment of sewage is a practicable possibility, according to the report made by the Illinois State Water Survey to the Board of Natural Resources and Conservation of that state. Experiments conducted by the Survey indicate that in a city of fifty thousand inhabitants the quantity of combustible gas given off each day by the sewage in the treatment tanks is more than ninety thousand cubic feet.

This gas contains 70 per cent. methane, the chief combustible constituent of natural gas, and has a heating value equivalent to 700 British thermal units per cubic foot, while the value of the common fuel gas is 550 to 600 units. The other constituents of the gas, carbon dioxide and nitrogen, are inert, and the gas itself has no more odor than ordinary fuel gas.

The gas is produced inthe digestion process which the sewage liquor undergoes in the Imhof treatment tanks, and formerly escaped into the air. It has been

known for a number of years that this product will burn readily, but city officials and sewage plant operators have not heretofore realized the gross value of the gas that goes to waste each day.

The Illinois State Water Survey, with funds assigned by the Chemical Foundation, is experimenting withthe collection and utilization of this gas and is developing a new type of treatment tankwhich is designed to give the maximum yield of gas.

AMERICANS TO EXCAVATE MAYA RUINS IN GUATEMALA

American archaeologists will soon delve into the past of ancient America now hidden in the ruined Maya cities of Uaxactun and Tayasal in Guatemala.

The Carnegie Institution of Washington has announced that it has signed a contract with the Government of Guatemala granting the Institution the right to excavate these two cities for a period of five years beginning January 1.

The ancient Maya race flourished in southern Mexico and northern Central America for a period known to extend through the first fifteen conturies of the Christian Era. The most advanced civilization of the New World in pre-Columbian times evolved through their endeavor.

Uaxactun is the earliest known Maya center, its oldest monument dating back to 68 A.D. The latest Maya city was Tayasal, founded between 1445 and 1450 A.D. and occupied down to 1697 A.D.

Last year the Government of Mexico gave the Carnegie Institution the right to excavate and sudy the Maya metropolis of Chichen Itza, in northeastern Yucatan, for a period of ten years. Chichen Itza was founded between 472 and 531 A.D., and barring a gap of two and a half centuries, and occupied down to 1448 A. D.

By means of these agreements withthe governmentsof Mexico and Guatemala, opportunity is open to the Institution for study of practically the entire range of Maya history.

An expedition under direction of Dr. S. G. Morley and O. G. Ricketson, Jr., will leave Washington for Uaxactun, Guatemala, early in January. Work for the third season will be undertaken at Chichen Itza in Yucatan.

The second best flavored fish in the world is the ayu, a species of trout which is found in the southernisland waters of Japan; it is only surpassed in flavor by the equlachon species which is a habitant of the waters of the Pacific northwest.

Unless it is thoroughly frozen during the winter, the lily-of-the-valley will not do well during the following year.

ASIATIC WEED FOUND IN AMERICAN WEST

A weed from Asia has invaded Idaho, and is threatening to establish itself as a permanent colonist. A specimen of the plant was sent to the U.S. National Herbarium at Washington for identification, by Mrs. M. E. Soth, of Pocatello, Idaho; and it was finally shown to be a member of the crucifer or mustard family, known to botanists as Hymenophysa pubescens. So completely unknown had the plant hitherto been in this country that the herbarium authorities had to send to Berlin for specimens for comparison before its identity could be fully established.

According to Mrs. Soth, the plant occurs in a colony at the edge of a field where alfalfa was formerly cultivated, and she believes that its seeds may have come in with imported alfalfa or grain seed. It is a free-flowering and free-seeding plant, producing seeds during its first season of growth, so that it will prove difficult to eradicate.

According to Paul C. Standley of the U. S. National Herbarium, the home of the species is interior Asia, the same region that gave us alfalfa. The climate of the region is similar to that of parts of the United States, which will favor the new weed.

It is recalled that many of our worst weeds, like the dandelion, Russian thistle, sow thistle and Jimson weed , are alien invaders. Mr. Standley states that another old world plant belonging to the same family as the newcomer, Lepidium perfoliatum, has spread with almost incredible rapidity through the Rocky Mountain states during the last few years.

PARTIAL PROHIBITION WORKS WELL ABROAD

The high cost of liquor has decreased the number of deliriumtremens cases in Copenhagen from 321 in 1910 to 24 in 1923. Dr. A. Wimmer, professor of psychiatry of the University of Copenhagen, who has investigated the liquor situation in this city, says that the reduction is entirely in the class of people who were not confirmed drinkers.

The heavy drinking is now being done by the chronic habitual drinkers, by feeble-minded and epileptics and by psychopathic degenerates. The casual drinker has become very moderate since the passing of the law in 1917 that resulted in the raising of the price of liquor.

The change in the character of the inmates committed to institutions for alcoholism since the anti-alcohol legislation is characteristic of France and Germany as well as of Denmark, Wimmer claims. Total prohibition would not make the degenerate normal, and he thinks it would be preposterous to inflict it on the entire population in order to benefit the comparatively few chronic habitual drinkers.

Chemistry has become a badly overcrowded profession in Germany; of the 10,000 chemists in that country about 1,000 are unemployed.

FIRST OUTDOOR ELECTRIC LIGHTING HALF CENTURY AGO

At Cornell University, the first institution in the country to teach engineering, the first outdoor electric lighting was installed in 1875, according to Prof. Frederick Bedell, four years before Edison made the first practical incandescent light. This was on the original Cornell campus, the illumination being supplied by two arc lights. The current was furnished from a dynamo built by Prof. W. A. Anthony and Prof. G. S. Moler, who is still a member of the faculty. Although it was recently used as a shop motor, this generator, said to be the first ever constructed in the western hemisphere, is still in good condition, and is preserved in Rockefeller Hall

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TABLOID BOOK REVIEW

THE ORGANIZATION OF LIFE. By Seba Eldridge. New York: Thomas Y. Crowell Company. 1925 $4.50.

The biologically informed person with a turn for philosophizing is glad occasionally to turn from the clatter and bang of the anti-evolutionist' attack, and the annoying necessity of defending himself against these smaller but swarming enemies, and to come to grips with a real problem in biological philosophy intelligently presented. There are very few books that do this, for in the biological world, and especially in this country, the constant pressure of teaching, research and administration usually combine to prevent biologists who think from writing down their thoughts. However, Professor Eldridge, being a philosopher, has succeeded in getting his book written, and there is little doubt but that it will be read. It is one of the first avowedly philosophical works in biology that has appeared since the pendulum has shown signs of swinging again toward Lamarck, so that one center of its orbit appropriately lies very near this old but perennial question in evolution. Its second center, likewise old but of perennial interest, is the eternal battle between mechanism and vitalism.

WHAT EVOLUTION IS. By George Howard Parker. Cambridge: Harvard University Press. 1925. $1.50

Professor Parker sums up in clear, straightforward, dignified fashion the known facts and principal beliefs concerning evolution, bringing the story down to date to include mention of the work of Kammerer, Guyer, and other recent experimenters. He is neither dogmatic nor argumentative, which is matter for thankfulness. He is brief, which is matter for further thankfulness. His book is illustrated with a few plain and simple diagrams, and is well printed and attractively bound. A very good book to give to the intelligent non-scientific inquirer, and to include in the reference library for elementary students.

There was never a "lost art" of hardening copper; the only "hardened copper" known to the ancients was bronze.

From the town of In Salah, located in the Tidikelt region of the Algerian Territoire des Oasis, some 600 miles south of the Mediteranean Sea as the crow flies, we shall travel southwest to Aoulef Cheurf. From there we shall go to Tacurirt, at which point we shall change our course and go northwest to Adrar.

During this part of the journey we shall be out of touch with civilization, and not until about December 15, when we are scheduled to reach Adrar, shall we be able to report our further progress.

We had intended going directly from Adrar to Charouin, but this direct route is impossible because of hostility of the natives. We therefore plan to go from Adrar to Drinken, then to Ouled Mahoud and thence to Timimoun. From Timimoun we shall make a side trip to visit Charouin to study a station or archeological site of old neolithic culture that is known to be there. Returning to Timimoun we shall travel northwest across the Grand Erg Occidental to Beni Ounif and then to Ain Sefra where our journey will be practically at an end.

M. Reygasse reports that the region around Aoulof Cheurf, our first objective, is known to have ancient paleolithic, Mousterian and neolithic sites. From the highlands known as the Grand Erg Occidental French officers bring back reports of finding evidence of neolithic cultures.

The material we collect and the studies we make may show the relation of the prehistoric cultures of the Sahara and those of the Mediterranean Coast and Europe. We shall make special efforts to find faunal or animal remains that will identify the exact geological eras or epochs in which the prehistoric cultures flourished.

Antropologists in America and Europe are interested in data that the Deloit-Sahara expedition under Alonzo W. Pond may supply to fill in an important gap in the map of the migrations of prehistoric man. The results achieved by Franco-American expedition, in which Dr. Pond participated, together with the preliminary work done in past years by M. Maurice Reygasse, French governor of Tebessa, are looked upon as reasons to hope that the trail of early man, which is now reasonably complete on the northern side of the Mediterranean, may soon be equally complete along its southern shore.

The map of man's migrations has grown in a most remarkable manner during the present year. At the beginning of 1925, the only well-authenticated human remains of the Neanderthal and Cro-Magnon types were those which had been made in southwestern and central Europe. But early last spring a Russian scientist named Bontisch-Osmolovsky discovered in a cave in Crimea parts of two Neanderthaloid skeletons, together with stone implements and bones of prehistoric animals. Then the Mongolian expedition of the American Museum, under Roy Chapman Andrews, reported the discovery in interior Asia of records of the "dune dwellers", who were also men of the Neanderthal type. These two discoveries vastly enlarged the known range of this ancient human race, and set the probable center of dispersal well to the east.

A key discovery was made near Capernaum, in Palestine, famed for its Biblical associations, when Francis Turville-Petre, an English paleonthologist, found the skull of a Neanderthal man of a peculiar and apparently advanced type. This suggested that the route that took the descendants of Abraham from Asia through Palestine and eventually into Egypt had been travelled long before by this primitive race. Stone age remains of all dates have longbeen known abundantly from the Nile region.